

WHAT IS CLAIMED IS:

- 5 1. An anastomosis system comprising:
first and second structural means, wherein each of said first and second structural means comprises a tubular region that terminates in a lip at one end, and further wherein said first and second structural means are capable of assuming a nested configuration.
- 10 2. The anastomosis system according to Claim 1, wherein the inner diameter of the tubular region of said second structural means is greater than the outer diameter of the tubular region of said first structural means.
- 15 3. The anastomosis system according to Claim 1, wherein said first and second structural means are flexible.
4. The anastomosis system according to Claim 3, wherein said first and second structural means are rigid.
- 20 5. The anastomosis system according to Claim 1, wherein said first and second structural means are nested.
6. The anastomosis system according to Claim 1, wherein said first and second structural means are separate.
- 25 7. An anastomosis system comprising:
first and second structural means, wherein each of said first and second structural means comprises a rigid biocompatible material and has a tubular region that terminates in a lip at one end, and further wherein said first and second structural means are capable of assuming a nested configuration.
- 30 8. The anastomosis system according to Claim 7, wherein the inner diameter of the tubular region of said second structural means is greater than the outer diameter of the tubular region of said first structural means.
9. The anastomosis system according to Claim 7, wherein said first and second

structural means are nested.

10. The anastomosis system according to Claim 7, wherein said first and second structural means are separate.

5

11. The anastomosis system according to Claim 7, wherein each lip of said first and second structural means has a curvilinear configuration.

12. The anastomosis system according to Claim 11, wherein said curvilinear configuration of said lip of said first structural means is different from said curvilinear configuration of said lip of said second structural means.

10

15

13. The anastomosis system according to Claim 7, wherein the length of the tubular region of the second structural means is less than the length of the tubular structure of the first structural means.

20

14. A vessel inserted through first and second structural means, wherein said first and second structural means each have a tubular region that terminates at one end in a lip, and wherein said first and second structural means are capable of assuming a nested configuration.

25

15. The vessel according to Claim 14, wherein the end of said vessel is everted over the distal surface and at least a portion of the proximal surface of the lip of said first structural means.

30

16. The vessel according to Claim 14, wherein the inner diameter of the tubular region of said second structural means is greater than the outer diameter of said tubular region of said first structural means.

17. The vessel according to Claim 14, wherein said vessel is a naturally occurring vessel.

18. The vessel according to Claim 17, wherein said vessel is a vascular vessel.

19. The vessel according to Claim 14, wherein said vessel is a synthetic vessel.
20. The vessel according to Claim 14, wherein said first and second structural means
5 are flexible.
21. The vessel according to Claim 14, wherein said first and second structural means are rigid.
- 10 22. A method for performing an end-to-side anastomosis, said method comprising:
 - (a) preparing an opening in a host vessel;
 - (b) inserting into said opening the end of a prepared graft vessel having a graft vessel threaded through first and second structural means, wherein each of said first and second structural means has a tubular region that terminates at one end in a lip,
15 wherein the end of said graft vessel is everted over the distal surface and at least a portion of the proximal surface of the lip of the first structural means; and
 - (c) sliding said second structural means over the tubular region of said first structural means in a manner sufficient to stably attach said graft vessel to said host vessel and establish fluid communication between the lumens of said graft and host
20 vessels;whereby said end-to-side anastomosis is performed.
23. The method according to Claim 22, wherein said method further comprises preparing said graft vessel.
25
24. The method according to Claim 23, wherein said graft vessel is prepared by:
 - sequentially inserting said graft vessel through the tubular regions of said first and second structural means; and
 - everting the end of said graft vessel over the distal surface and at least a portion of
30 the proximal surface of the lip of said first structural means.
25. A kit for use in performing an end-to-side anastomosis, said kit comprising:

an anastomosis system comprising at least one set of first and second structural means, wherein said first and second structural means each have a tubular region that terminates in a lip at one end, and further wherein said first and second structural means are capable of assuming a nested configuration.

5

26. The kit according to Claim 25, wherein the inner diameter of said tubular region of said second structural means is greater than the outer diameter of said tubular region of said first structural means.

10

27. The kit according to Claim 25, wherein said kit comprises a plurality of said anastomosis systems.

15

28. The kit according to Claim 25, wherein said kit further comprises a synthetic vessel.

29. The kit according to Claim 25, wherein said kit further comprises a delivery means.

20

30. The kit according to Claim 25, wherein said kit further comprises a structural means holder for use in preparation of a graft vessel.

10010960-110901